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Docket No. **AUS990796US1**

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11/19/99

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:
Transmitted herewith for filing is the patent application of Inventor(s):
SANAA F. ABDELHADI, MARITZA BORUNDA, AND HYPATIA ROJAS

For: **METHOD AND APPARATUS FOR PRINTING WEB PAGES**

Enclosed are also:

X 21 Pages of Specification including an Abstract
X 7 Pages of Claims
X 7 Sheet(s) of Drawings
X A Declaration and Power of Attorney
X Form PTO 1595 and assignment of the invention to IBM Corporation

CLAIMS AS FILED

FOR	Number Filed		Number Extra		Rate		Basic Fee ($760)
Total Claims	34	-20 =	14	X	$ 18	=	$252.00
Independent Claims	7	-3 =	4	X	$ 78	=	$312.00
Multiple Dependent Claims	0			X	$260	=	$0
					Total Filing Fee	=	$1,324.00

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X Any additional filing fees required under 37CFR § 1.16.
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EJ187645755US

Docket No. AUS990796US1

METHOD AND APPARATUS FOR PRINTING WEB PAGES

BACKGROUND OF THE INVENTION

1. Technical Field:

The present invention relates generally to an improved data processing system and in particular to a method and apparatus for outputting data to a device. Still more particularly, the present invention provides a method and apparatus for printing Web pages containing links.

2. Description of Related Art:

The Internet, also referred to as an "internetwork", is a set of computer networks, possibly dissimilar, joined together by means of gateways that handle data transfer and the conversion of messages from the sending network to the protocols used by the receiving network (with packets if necessary). When capitalized, the term "Internet" refers to the collection of networks and gateways that use the TCP/IP suite of protocols.

The Internet has become a cultural fixture as a source of both information and entertainment. Many businesses are creating Internet sites as an integral part of their marketing efforts, informing consumers of the products or services offered by the business or providing other information seeking to engender brand loyalty. Many federal, state, and local government agencies are also employing Internet sites for informational purposes, particularly agencies which must interact with virtually all segments of society such as the Internal Revenue

Service and secretaries of state. Providing informational guides and/or searchable databases of online public records may reduce operating costs. Further, the Internet is becoming increasingly popular as a medium for commercial transactions.

Currently, the most commonly employed method of transferring data over the Internet is to employ the World Wide Web environment, also called simply "the Web". Other Internet resources exist for transferring information, such as File Transfer Protocol (FTP) and Gopher, but have not achieved the popularity of the Web. In the Web environment, servers and clients effect data transaction using the Hypertext Transfer Protocol (HTTP), a known protocol for handling the transfer of various data files (e.g., text, still graphic images, audio, motion video, etc.). The information in various data files is formatted for presentation to a user by a standard page description language, the Hypertext Markup Language (HTML). In addition to basic presentation formatting, HTML allows developers to specify "links" to other Web resources identified by a Uniform Resource Identifier (URI) such as a Uniform Resource Locator (URL). A URL is a special syntax identifier defining a communications path to specific information. Each logical block of information accessible to a client, called a "page" or a "Web page", is identified by a URL. The URL provides a universal, consistent method for finding and accessing this information, not necessarily for the user, but mostly for the user's Web "browser". A browser is a program capable of submitting a request for information identified by a URL at the client machine.

Retrieval of information on the Web is generally accomplished with an HTML-compatible browser.

In some cases, a user may desire to obtain a hard copy of one or more Web pages. In many cases, the user may desire to print out a copy of an article or some other content on a Web site. In some cases, the entire article or the desired content may be printed all at once. In other cases, the article or desired content may be divided up into many different pages which are linked to each other by URLs. In this situation, the user must print a page. This page may contain a number of links pointing to other pages containing other portions of the article or desired content. Each of these links must be visited by the user and then printed. Such a process becomes tedious and difficult when large number of links are present.

Therefore, it would be advantageous to have an improved method and apparatus for printing web pages.

Sapphire Exhibit 1005

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus in a data processing system for printing web pages. A request to print a web page is received. The web page is printed and each web page associated with the web page on selected levels below the web page also are printed.

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BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

Figure 1 depicts a pictorial representation of a distributed data processing system in which the present invention may be implemented;

Figure 2 is a block diagram depicts a data processing system that may be implemented as a server in accordance with a preferred embodiment of the present invention;

Figure 3 is a block diagram illustrates a data processing system in which the present invention may be implemented;

Figure 4 is a diagram illustrating a print process depicted in accordance with a preferred embodiment of the present invention;

Figure 5 is a diagram illustrating printing of Web pages depicted in accordance with a preferred embodiment of the present invention;

Figure 6 is a diagram illustrating Web page link printing depicted in accordance with a preferred embodiment of the present invention;

Figure 7 is a flowchart of a process for Web page link printing depicted in accordance with a preferred embodiment of the present invention; and

Figure 8, a flowchart of a process for selecting and printing links is depicted in accordance with a preferred embodiment of the present invention.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the figures, **Figure 1** depicts a pictorial representation of a distributed data processing system in which the present invention may be implemented. Distributed data processing system **100** is a network of computers in which the present invention may be implemented. Distributed data processing system **100** contains a network **102**, which is the medium used to provide communications links between various devices and computers connected together within distributed data processing system **100**. Network **102** may include permanent connections, such as wire or fiber optic cables, or temporary connections made through telephone connections.

In the depicted example, a server **104** is connected to network **102** along with storage unit **106**. In addition, clients **108**, **110**, and **112** also are connected to network **102**. These clients **108**, **110**, and **112** may be, for example, personal computers or network computers. For purposes of this application, a network computer is any computer, coupled to a network, which receives a program or other application from another computer coupled to the network. In the depicted example, server **104** provides data, such as boot files, operating system images, and applications to clients **108-112**. Clients **108**, **110**, and **112** are clients to server **104**. Web pages and other contents may be printed in a hard copy form using printers, such as printers **114** and **116**. The printing may take place locally or remotely.

Distributed data processing system **100** may include

additional servers, clients, and other devices not shown. In the depicted example, distributed data processing system **100** is the Internet with network **102** representing a worldwide collection of networks and gateways that use the TCP/IP suite of protocols to communicate with one another. At the heart of the Internet is a backbone of high-speed data communication lines between major nodes or host computers, consisting of thousands of commercial, government, educational and other computer systems that route data and messages. Of course, distributed data processing system **100** also may be implemented as a number of different types of networks, such as for example, an intranet, a local area network (LAN), or a wide area network (WAN). **Figure 1** is intended as an example, and not as an architectural limitation for the present invention.

Referring to **Figure 2**, a block diagram depicts a data processing system that may be implemented as a server, such as server **104** in **Figure 1**, in accordance with a preferred embodiment of the present invention. Data processing system **200** may be a symmetric multiprocessor (SMP) system including a plurality of processors **202** and **204** connected to system bus **206**. Alternatively, a single processor system may be employed. Also connected to system bus **206** is memory controller/cache **208**, which provides an interface to local memory **209**. I/O bus bridge **210** is connected to system bus **206** and provides an interface to I/O bus **212**. Memory controller/cache **208** and I/O bus bridge **210** may be integrated as depicted.

Peripheral component interconnect (PCI) bus bridge **214** connected to I/O bus **212** provides an interface to PCI

local bus **216**. A number of modems may be connected to PCI bus **216**. Typical PCI bus implementations will support four PCI expansion slots or add-in connectors. Communications links to network computers **108-112** in **Figure 1** may be provided through modem **218** and network adapter **220** connected to PCI local bus **216** through add-in boards.

Additional PCI bus bridges **222** and **224** provide interfaces for additional PCI buses **226** and **228**, from which additional modems or network adapters may be supported. In this manner, data processing system **200** allows connections to multiple network computers. A memory-mapped graphics adapter **230** and hard disk **232** may also be connected to I/O bus **212** as depicted, either directly or indirectly.

Those of ordinary skill in the art will appreciate that the hardware depicted in **Figure 2** may vary. For example, other peripheral devices, such as optical disk drives and the like, also may be used in addition to or in place of the hardware depicted. The depicted example is not meant to imply architectural limitations with respect to the present invention.

The data processing system depicted in **Figure 2** may be, for example, an IBM RISC/System 6000 system, a product of International Business Machines Corporation in Armonk, New York, running the Advanced Interactive Executive (AIX) operating system.

With reference now to **Figure 3**, a block diagram illustrates a data processing system in which the present invention may be implemented. Data processing system **300**

is an example of a client computer. Data processing system **300** employs a peripheral component interconnect (PCI) local bus architecture. Although the depicted example employs a PCI bus, other bus architectures such as Accelerated Graphics Port (AGP) and Industry Standard Architecture(ISA) may be used. Processor **302** and main memory **304** are connected to PCI local bus **306** through PCI bridge **308**. PCI bridge **308** also may include an integrated memory controller and cache memory for processor **302**. Additional connections to PCI local bus **306** may be made through direct component interconnection or through add-in boards. In the depicted example, local area network (LAN) adapter **310**, SCSI host bus adapter **312**, and expansion bus interface **314** are connected to PCI local bus **306** by direct component connection. In contrast, audio adapter **316**, graphics adapter **318**, and audio/video adapter **319** are connected to PCI local bus **306** by add-in boards inserted into expansion slots. Expansion bus interface **314** provides a connection for a keyboard and mouse adapter **320**, modem **322**, and additional memory **324**. Small computer system interface (SCSI) host bus adapter **312** provides a connection for hard disk drive **326**, tape drive **328**, and CD-ROM drive **330**. Typical PCI local bus implementations will support three or four PCI expansion slots or add-in connectors.

An operating system runs on processor **302** and is used to coordinate and provide control of various components within data processing system **300** in **Figure 3**. The operating system may be a commercially available operating system such as OS/2, which is available from International

Business Machines Corporation. "OS/2" is a trademark of International Business Machines Corporation. An object oriented programming system such as Java may run in conjunction with the operating system and provides calls to the operating system from Java programs or applications executing on data processing system **300**. "Java" is a trademark of Sun Microsystems, Inc. Instructions for the operating system, the object-oriented operating system, and applications or programs are located on storage devices, such as hard disk drive **326**, and may be loaded into main memory **304** for execution by processor **302**.

Those of ordinary skill in the art will appreciate that the hardware in **Figure 3** may vary depending on the implementation. Other internal hardware or peripheral devices, such as flash ROM (or equivalent nonvolatile memory) or optical disk drives and the like, may be used in addition to or in place of the hardware depicted in **Figure 3**. Also, the processes of the present invention may be applied to a multiprocessor data processing system.

For example, data processing system **300**, if optionally configured as a network computer, may not include SCSI host bus adapter **312**, hard disk drive **326**, tape drive **328**, and CD-ROM **330**, as noted by dotted line **332** in **Figure 3** denoting optional inclusion. In that case, the computer, to be properly called a client computer, must include some type of network communication interface, such as LAN adapter **310**, modem **322**, or the like. As another example, data processing system **300** may be a stand-alone system configured to be bootable without relying on some type of network communication interface,

whether or not data processing system **300** comprises some type of network communication interface. As a further example, data processing system **300** may be a Personal Digital Assistant (PDA) device which is configured with ROM and/or flash ROM in order to provide non-volatile memory for storing operating system files and/or user-generated data.

The depicted example in **Figure 3** and above-described examples are not meant to imply architectural limitations. For example, data processing system **300** also may be a notebook computer or hand held computer in addition to taking the form of a PDA. Data processing system **300** also may be a kiosk or a Web appliance.

The present invention provides a method, apparatus, and instructions for outputting content from a Web page or set of Web pages to an output device. The present invention allows for a user to print a Web page and a selected number of other pages linked to this page, directly or indirectly, on lower levels. In particular, the mechanism of the present invention receives a request to print a particular Web page. This Web page is printed along with all other Web pages located on selected levels below the particular Web page. The number of levels below the selected Web page may be selected by a user or may be based on a default value. The environment in which the mechanism operations is discussed in more detail below.

With reference now to **Figure 4**, a diagram illustrating a print process is depicted in accordance with a preferred embodiment of the present invention. In this example, the user at client **400** requests pages from

a server **402**. Specifically, requests are generated using a browser **404**. As used herein a browser is a client application that enables a user to view content in distributed data processing system. In these examples, a Web browser is illustrated, allowing HTML documents on the World Wide Web, another network, or the user's computer to be viewed. Also, browser **404** may be used to follow hyperlinks in the documents among them as well as transfer files. Browser **400** includes a connection that can handle IP packets as well display graphics that are in the document, play audio and video files, and execute small programs, such as Java applets, that can be embedded in HTML documents. Some Web browsers use helper applications or plug-ins to accomplish one or more of these tasks.

The request is received at a request engine **406** located in server **402**. Request engine **406** queries Web page database **408** for a Web page matching the request from client **400**. A Web page **410** matching the request in Web page database **408** is returned to browser **404** in client **400** via request engine **406**. In this example, the user at client **400** may decide to print Web page **410** using browser **404**. This Web page is printed using printer driver **412** in this example. Furthermore, Web page **410** may be actually printed at a printer located remotely from client **400**. The mechanism of the present invention identifies all of the links within Web page **410** and retrieves those pages for printing. The retrieved pages may be parsed or reviewed for links. The pages to these links also may be retrieved for printing. Each

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successive Web page is considered another level. In these examples, the number of levels may be set by the user or through a default value. This printing of Web pages is also referred to as Web page link printing. The mechanism of the present invention may be implemented in a number of places. For example, the mechanism may be implemented as a plug-in in a Web browser or as a print driver. A "plug-in" is a small software program that plugs into a larger application to provide added functionality. Alternatively, the mechanism may be located on a server, which returns all of the pages to a client for printing in response to a request to print a Web page.

Turning now to **Figure 5**, a diagram illustrating printing of Web pages is depicted in accordance with a preferred embodiment of the present invention. In this example, a Web page **500** is selected for printing using the mechanism of the present invention. Web page **500** is at level 0 in this example. Link **502** in Web page **500** is identified and Web page **504** is retrieved as the content associated with link **502**. Web page **504** is identified as being in level 1 in this example. Link **506** in Web page is identified and Web page **508** is retrieved. Web page **508** is at level 2.

Each of these Web pages, Web pages **500**, **504**, and **508** may be printed as they are retrieved or after all of the pages have been retrieved. Only one link is identified for each level below level 0 for printing in relation to the Web pages. Of course in actual practice, all of links for each Web page on each level are identified with the associated Web pages being retrieved for printing.

Turning next to **Figure 6**, a diagram illustrating Web page link printing is depicted in accordance with a preferred embodiment of the present invention. In this example, a user has selected Web page **600** for printing along with printing associated Web pages two levels down from Web page **600**.

Web page **600** is located at level 0 and contains three links **602-606**. These three links are associated with Web pages **608-612**. Web pages **608-612** are located on level 1 in this example. Web page **608** is accessed using link **602**, Web page **610** is accessed using link **604**, and Web page **612** is accessed using link **606**. Web page **608** contains links **614** and **616**. Web page **610** contains links **618** and **620**. Web page **612** contains a single link, link **622**.

Level 2 contains Web pages **624-632**. Web page **624** is accessed using link **614** in Web page **608**. Web page **626** is accessed using link **616** in Web page **608**. Web pages **628** and **630** are accessed using links **618** and **620** in Web page **610**. Web page **632** is accessed using link **622** in Web page **612**. Web pages **624**, **626**, and **632** contain links **634-642**. The pages associated with these links are not retrieved because they are located on a level lower than the one specified by the user. Also, in this example, Web page **632** contains a link returning to a previous level. In particular, link **640** in this example is tied to link **604** in Web page **600**. The mechanism of the present invention does not process the link such that a recursive loop occurs. The tracking of prior paths may be performed in a number of ways. For example, all links that have been

selected for printing may be stored in a hash table in which each entry contains a URL and a file name. If the mechanism of the present invention identifies a link that matches an entry into hash table, this link is not retrieved or printed. The prior path is identified and remains unfollowed.

Using the mechanism of the present invention, all of the Web pages on levels 0-2 are printed in response to a selection of page **600** for printing. The other pages are retrieved and printed without the user having to select each link for each page and printing a page after it has been retrieved. Instead, the user is able to select a single page and a depth or level to which printing should occur.

Additionally, the present invention also may allow a user to select selected pages on different levels for printing. For example, a user may see twenty links on a page, but choose not to print all twenty of the pages below. In such a case, the user may select a subset of the links for printing. Only those selected links would be traversed by the mechanism of the present in printing pages.

With reference now to **Figure 7**, a flowchart of a process for Web page link printing is depicted in accordance with a preferred embodiment of the present invention. The process begins by receiving a request to print a Web page (step **700**). A determination is made as to whether multi-level printing is to be performed (step **702**). This determination is made in response to a user input. For example, a prompt may be displayed to the user asking whether mulit-level printing is to be

performed. If multi-level printing is to occur, a determination is then made as to whether a level has been selected (step **704**). The level may be selected by a prompt to the user or through some other input mechanism. If a level has been selected, the maximum depth is set equal to the selected level (step **706**). A level index i is set equal to zero (step **708**).

The process then identifies links in each of the retrieved Web pages (step **710**). In the first pass, only a single Web page is present. This page is the Web page selected by the user for printing. On subsequent passes, more than one page may be present for printing. The index i is incremented by one (step **712**). Thereafter, prior paths are identified and eliminated (step **714**). This step is used to prevent the process from being stuck in a recursive loop. Paths to pages previously accessed are ignored using step **714**.

Next, Web pages are retrieved for the identified links (step **716**). The Web pages are then printed (step **718**). The first pass through step **718** includes printing the Web page selected by the user. Thereafter, a determination is made as to whether the index i is equal to the maximum depth (step **720**). If the index i is equal to the maximum depth, the process terminates. Otherwise, the process returns to step **710**.

With reference again to step **704**, if the level was not selected by the user, the maximum depth is set equal to a default value (step **722**) with the process then proceeding to step **708** as described above. Turning back to step **702**, if multi-level printing has not be selected,

the Web page identified in the request back in step **700** is printed (step **724**) with the process terminating thereafter.

With reference now to **Figure 8**, a flowchart of a process for selecting and printing links is depicted in accordance with a preferred embodiment of the present invention. The process begins by loading a page for display to the user (step **800**). Thereafter, a determination is made as to whether a link has been selected by the user for printing (step **802**). If a link has been selected, the link is stored in a table (step **804**). Thereafter, the link is displayed in a "tag" form (step **806**) with the process returning to step **802**. This display of link may be using some symbol in association with the link or by highlighting the link or displaying the link in a different color. With reference again to step **802**, if no more links are selected, the process then terminates. The process in **Figure 8** generates a table of links that may be used in the process illustrated in **Figure 7**. In such a case, each link that has been tagged or selected by the user is treated as a separate request to print a Web page. Alternatively, the process may be implemented such that only links selected by a user are retrieved and printed.

Thus, the present invention provides an improved method and apparatus for printing content, such as Web pages having links or associations with other Web pages. A depth or level of printing is selected for the content and all of the content down to the selected level is retrieved and printed. The mechanism of the present invention may be applied to other content other than Web

pages. Files identified by links in Web pages also may be retrieved and printed. Further, content located in tree structures, such as files in directories arranged in a hierarchical fashion, may be printed using the mechanism of the present invention. In such a case, a directory or file may be selected for printing. Files located in subdirectories are identified and retrieved for printing.

It is important to note that while the present invention has been described in the context of a fully functioning data processing system, those of ordinary skill in the art will appreciate that the processes of the present invention are capable of being distributed in the form of a computer readable medium of instructions and a variety of forms and that the present invention applies equally regardless of the particular type of signal bearing media actually used to carry out the distribution. Examples of computer readable media include recordable-type media such a floppy disc, a hard disk drive, a RAM, and CD-ROMs and transmission-type media such as digital and analog communications links.

The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art. For example, the mechanism of the present invention may be located in various components. One location is as a plug-in in a Web browser. Another location may be as a print driver that is selectable by the user when the user desires to perform multi-level

printing. In such a case, the "print driver" would perform the step necessary to identify content on lower levels, retrieve the content, and print the content. The printing may be accomplished by directing the content to a typical print driver, such as one for a laser printer. Additionally, the content may be output to other output devices other than a printer. For example, the content may be directed to a display or even to a file. The embodiment was chosen and described in order to best explain the principles of the invention the practical application and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

Sheppard Mullin Draft

CLAIMS:

What is claimed is:

1. A method in a data processing system for printing web pages, the method comprising the data processing system implemented steps of:

receiving a request to print a web page; and

printing the web page and each web page associated with the web page.

2. The method of claim 1, wherein the printing step prints the Web page in each Web page associated with the Web page on selected levels below the Web page.

3. The method of claim 2, wherein the printing step comprising:

sending the web page and each web page associated with the web page on selected levels below the web page to a printer.

4. The method of claim 2, wherein the printing step comprising:

sending the web page and each web page associated with the web page on selected levels below the web page to a display device.

5. The method of claim 2, wherein the printing step comprising:

sending the web page and each web page associated with the web page on selected levels below the web page to a file.

6. The method of claim 2, wherein the data processing system is a client computer.

7. The method of claim 2, wherein the data processing system is a web server.

8. A method in a data processing system for printing web pages, the method comprising the data processing system implemented steps of:

responsive to an input selecting a current web page for printing, determining whether a maximum depth for printing has been reached;

identifying a set of universal resource identifiers located within the current web page in response to the maximum depth being unreached;

retrieving the web page identified by the set of uniform resource locators; and

printing each web page retrieved.

9. The method of claim 8 further comprising:

repeating the determining, identifying, retrieving, and printing steps for each web page until the maximum depth has been reached.

10. The method of claim 8, wherein the printing step comprises sending each web page to an output device.

11. The method of claim 10, wherein the output device is a printer.

12. The method of claim 10, wherein the output device is

a display device.

13. The method of claim 8, wherein the data processing system is a client computer.

14. The method of claim 8, wherein the data processing system is a web server.

15. The method of claim 8, wherein the determining, identifying, and retrieving steps are performed in a web server and wherein the printing step is performed in a client computer.

16. A method for printing items comprising the data processing system implemented steps of:

receiving a request to print a current item, wherein additional items are associated with the current item in relationship in which the additional items are on levels below the current item;

printing the current item;

determining whether additional items on levels below the current item are to be printed; and

responsive to a determination that additional items are to be printed, printing the additional items.

17. The method of claim 16, wherein the items are web pages associated using universal resource identifiers.

18. The method of claim 16, wherein the items are files associated using directories.

19. A data processing system for printing web pages, the data processing system comprising:

receiving means for receiving a request to print a web page; and

printing means for printing the web page and each web page associated with the web page on selected levels below the web page.

20. The data processing system of claim 19, wherein the printing means comprises:

sending means for sending the web page and each web page associated with the web page on selected levels below the web page to a printer.

21. The data processing system of claim 19, wherein the printing means comprises:

sending means for sending the web page and each web page associated with the web page on selected levels below the web page to a display device.

22. The data processing system of claim 19, wherein the printing means comprises:

sending means for sending the web page and each web page associated with the web page on selected levels below the web page to a file.

23. The data processing system of claim 19, wherein the data processing system is a client computer.

24. The data processing system of claim 19, wherein the data processing system is a web server.

25. A data processing system for printing web pages, the data processing system comprising:

determining means, responsive to an input selecting a current web page for printing, for determining whether a maximum depth for printing has been reached;

identifying means for identifying a set of universal resource identifiers located within the current web page in response to the maximum depth being unreached;

retrieving means for retrieving the web page identified by the set of uniform resource locators; and

printing means for printing each web page retrieved.

26. The data processing system of claim 25 further comprising:

repeating the determining means, identifying means, retrieving means, and printing means for each web page until the maximum depth has been reached.

27. The data processing system of claim 25, wherein the printing means comprises sending each web page to an output device.

28. The data processing system of claim 27, wherein the output device is a printer.

29. The data processing system of claim 27, wherein the output device is a display device.

30. The data processing system of claim 25, wherein the data processing system is a client computer.

31. The data processing system of claim 25, wherein the data processing system is a web server.

32. The data processing system of claim 25, wherein the determining means, identifying means, and retrieving means are performed in a web server and wherein the printing means is performed in a client computer.

33. A computer program product in a computer readable medium for printing web pages, the computer program product comprising:

first instructions for receiving a request to print a web page; and

second instructions for printing the web page and each web page associated with the web page on selected levels below the web page.

34. A computer program product in a computer readable medium for printing web pages, the computer program product comprising:

first instructions, responsive to an input selecting a current web page for printing, for determining whether a maximum depth for printing has been reached;

second instructions for identifying a set of universal resource identifiers located within the current web page in response to the maximum depth being unreached;

third instructions for retrieving the web page identified by the set of uniform resource locators; and

fourth instructions for printing each web page

retrieved.

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ABSTRACT OF THE DISCLOSURE

METHOD AND APPARATUS FOR PRINTING WEB PAGES

A method and apparatus in a data processing system for printing web pages. A request to print a web page is received. The web page is printed and each web page associated with the web page on selected levels below the web page.

Sub E1

Figure 1
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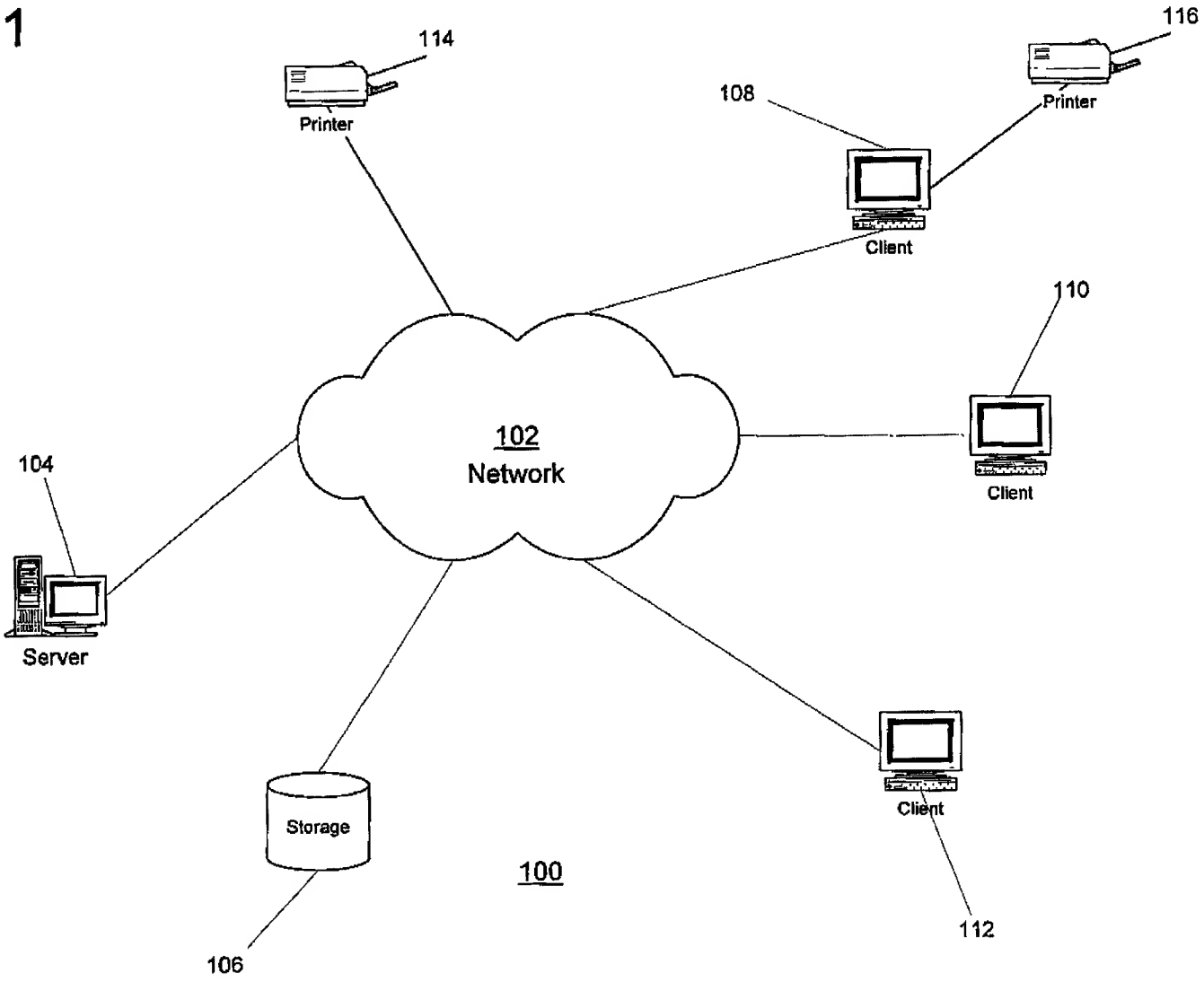

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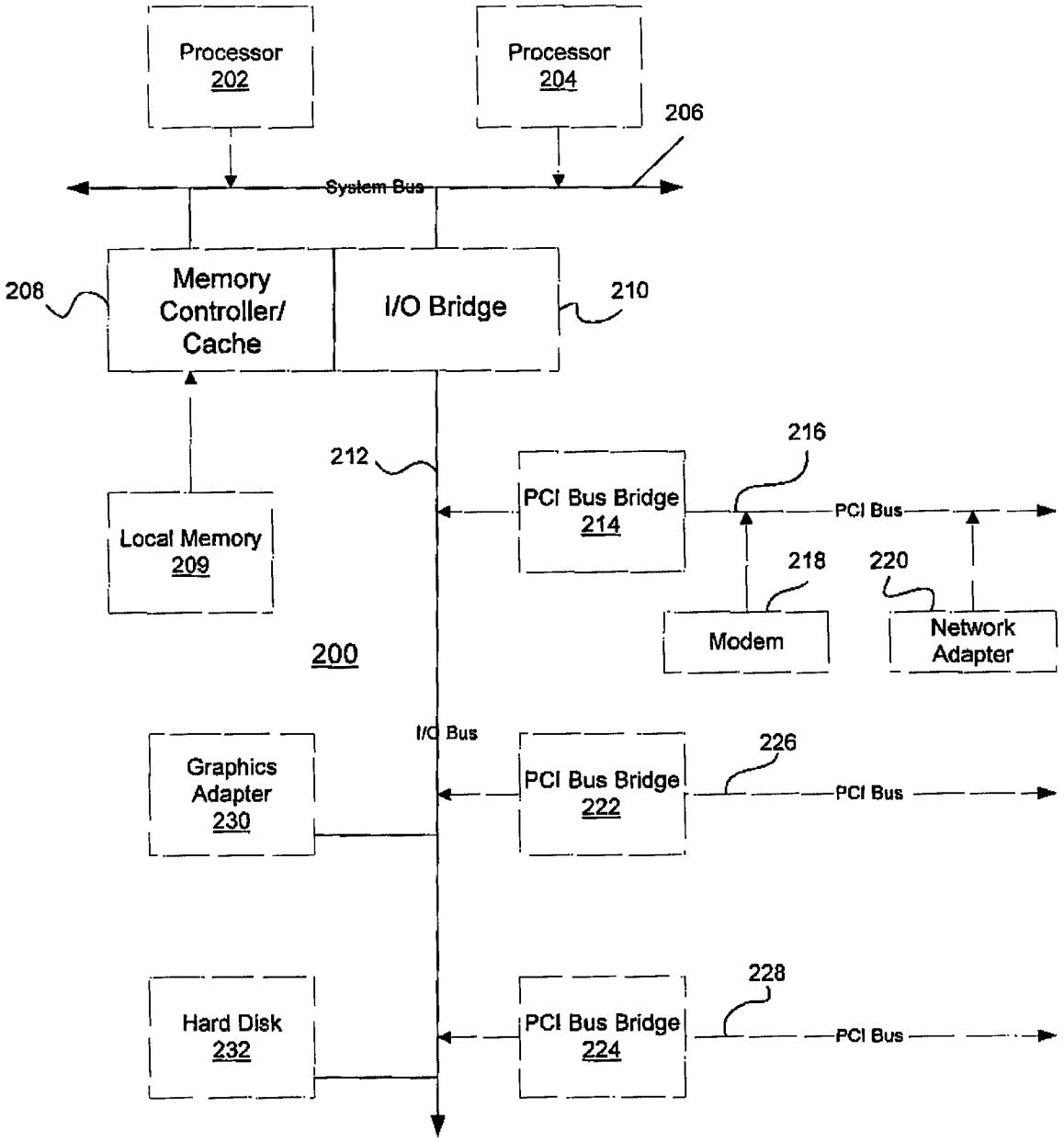

Figure 2

AUS990796US1

server

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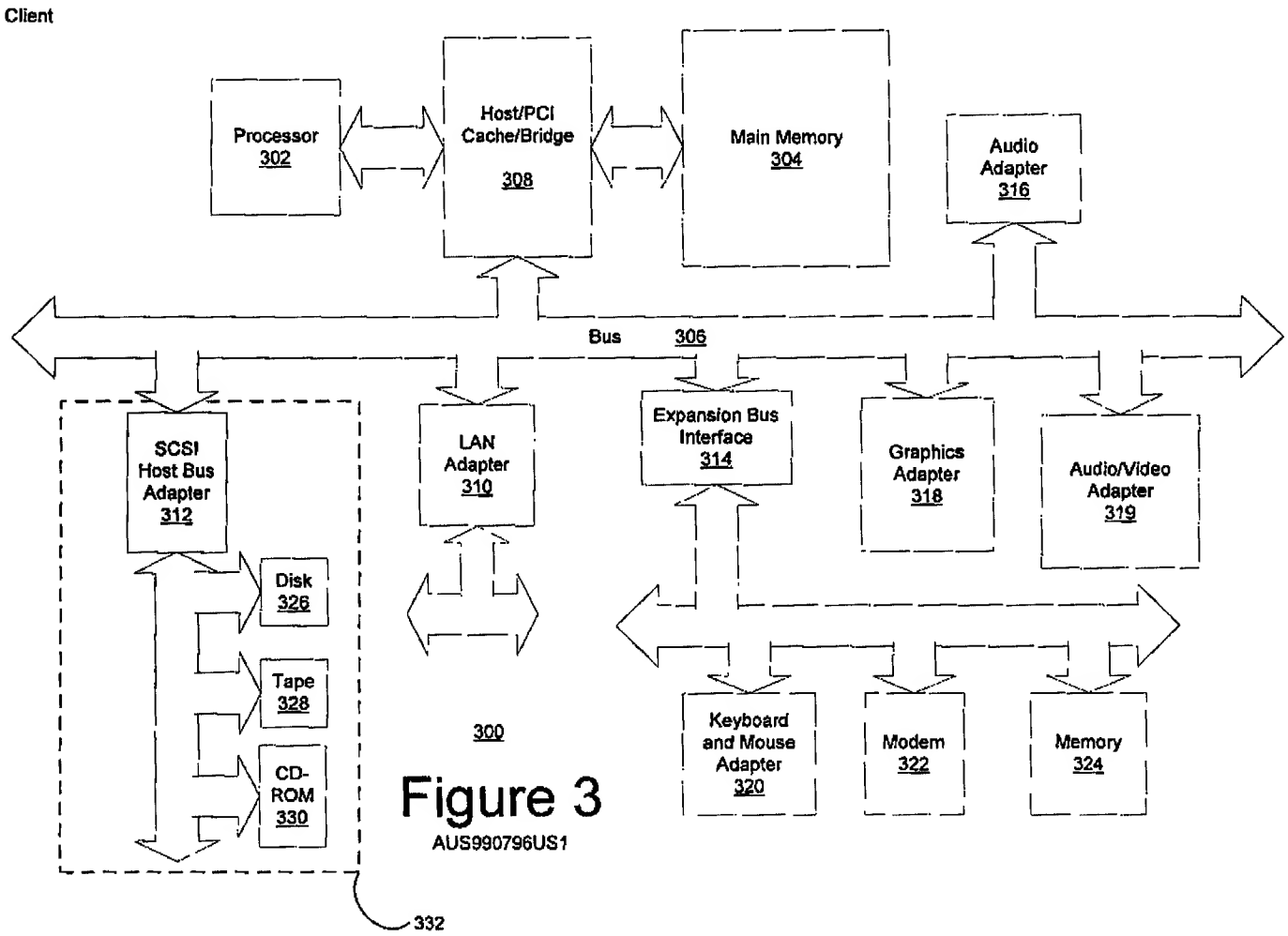

Figure 3

AUS990796US1

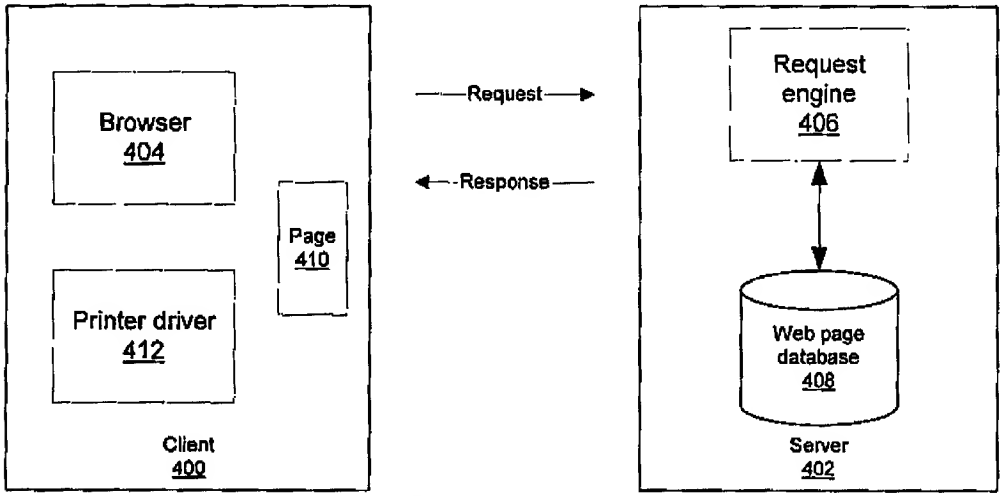

Figure 4

AUS990796US1

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Figure 5

AUS990796US1

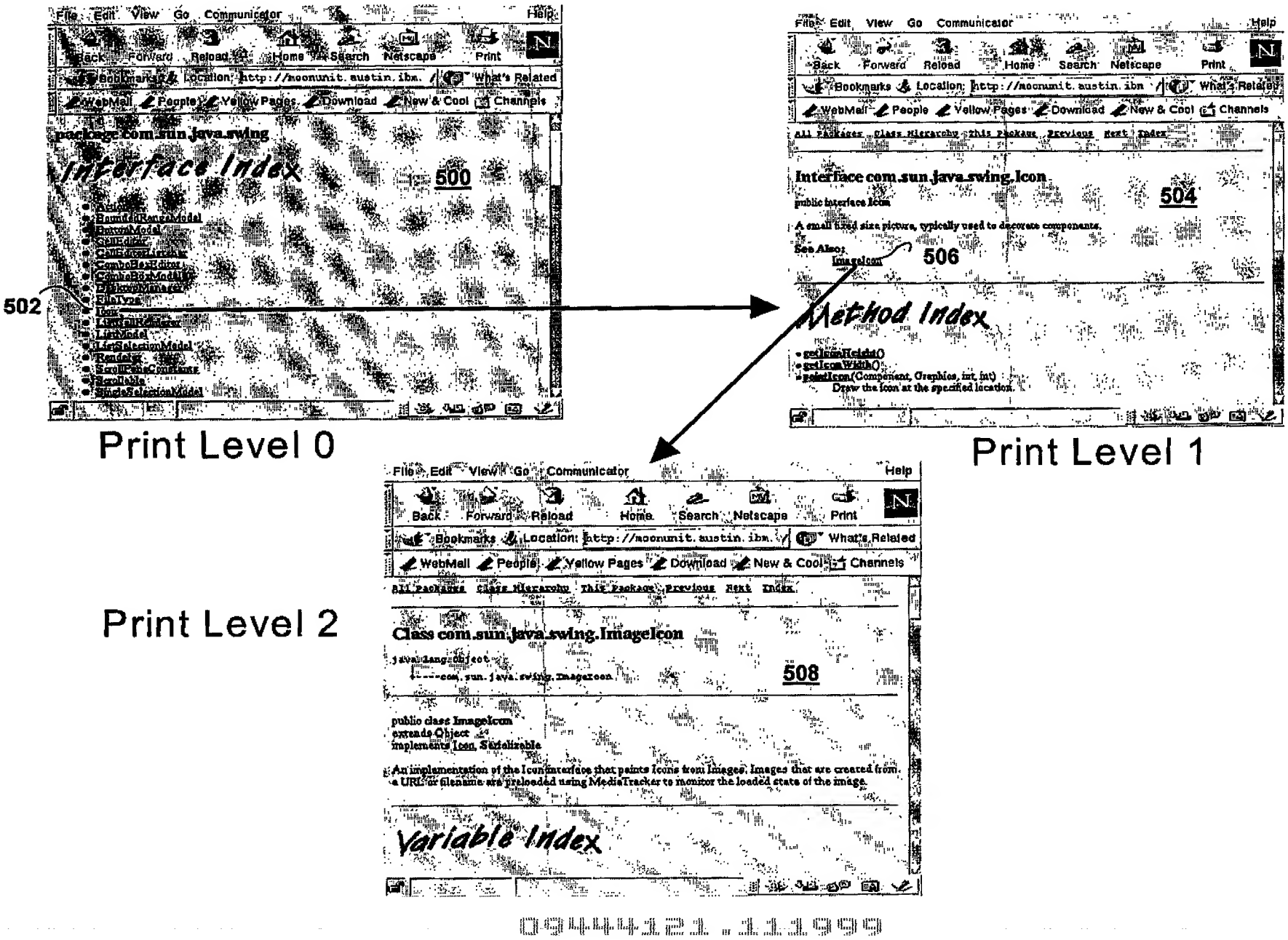

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Figure 6

AUS990796US1

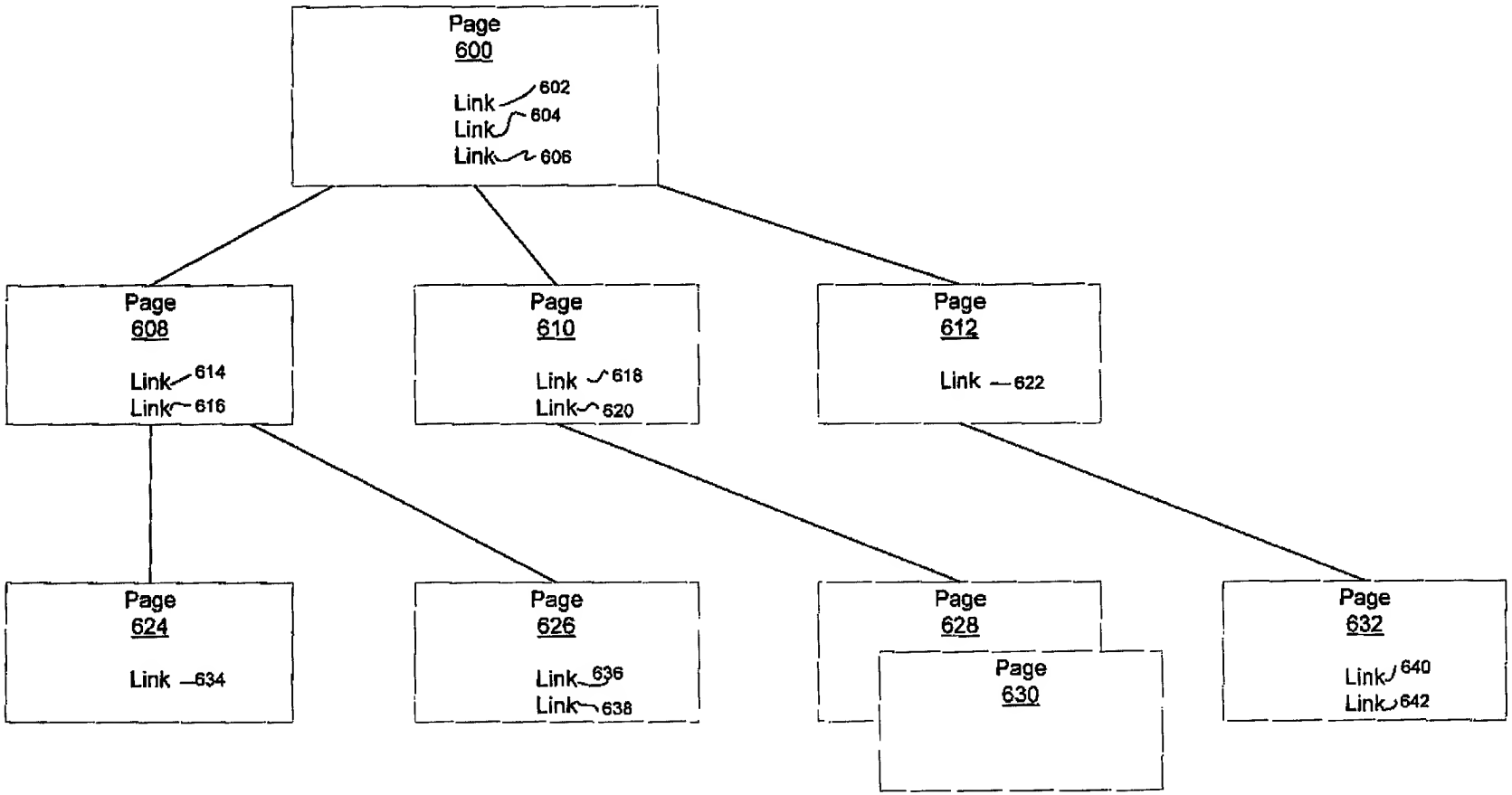

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Figure 7

AUS990796US1

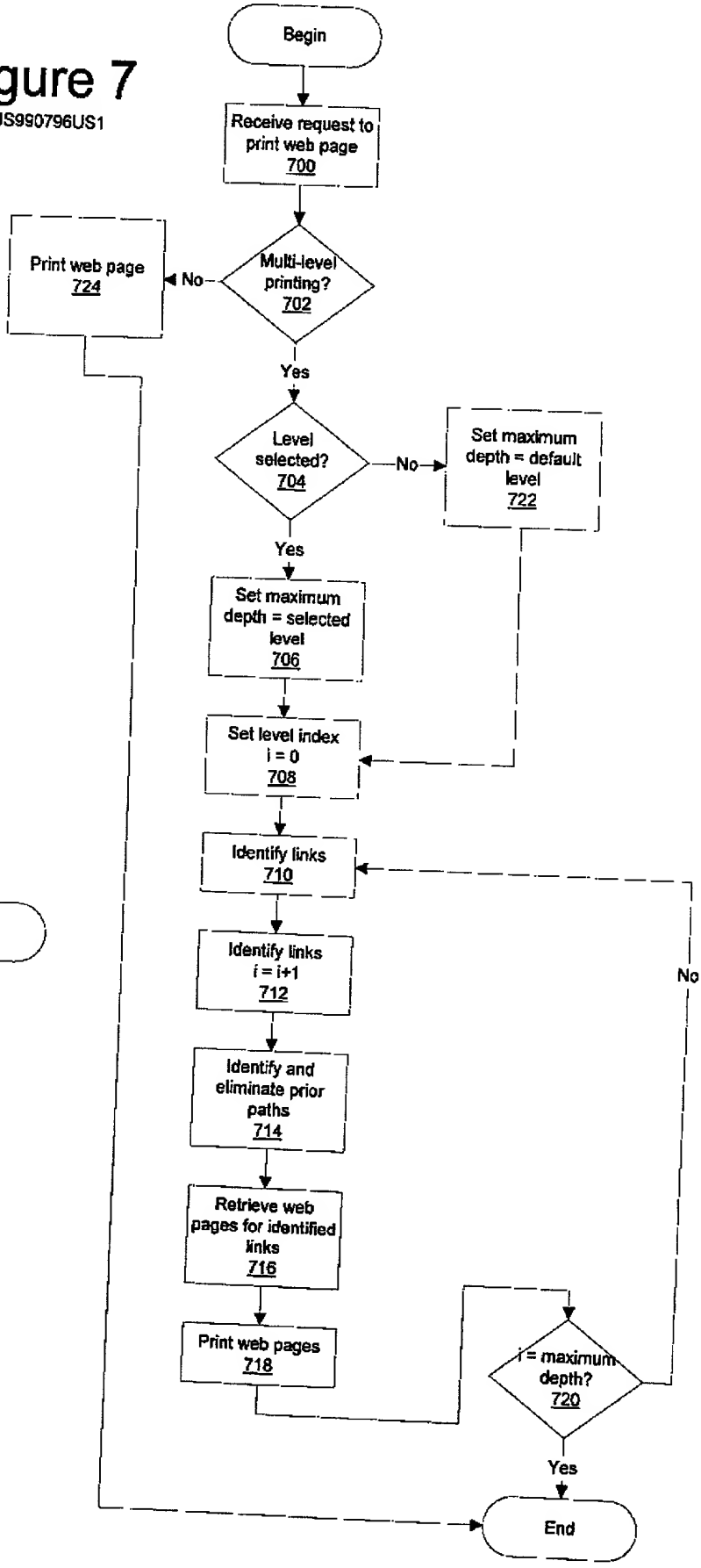
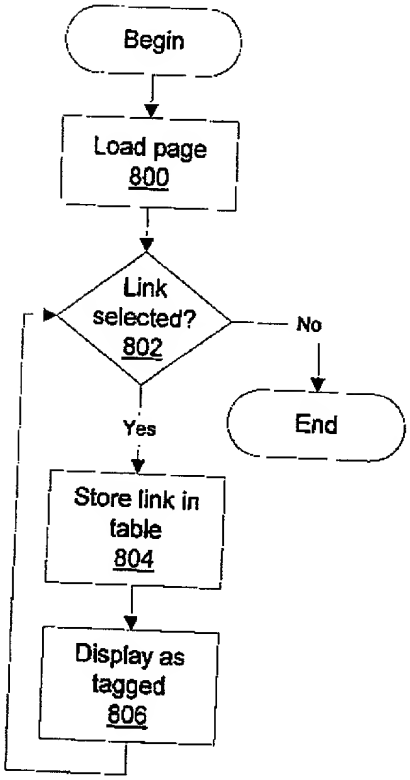


Figure 8

AUS990796US1



DOCKET NUMBER: AUS990796US1

DECLARATION AND POWER OF ATTORNEY FOR

PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD AND APPARATUS FOR PRINTING WEB PAGES

the specification of which (check one)

X is attached hereto.

__ was filed on _____
as Application Serial No._____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):			Priority Claimed
(Number)	(Country)	(Day/Month/Year)	___ Yes___ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information material to the patentability of this application as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial #)	(Filing Date)	(Status)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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